Australian National University

JCSMR Projects for Biology Honours for 2017

Dr Gaetan Burgio - Genetics of Host-pathogens interactions and Genome editing

- Genetic identification of the Host response to Malaria
- Genetics of the host response to multi-drug resistant bacteria or 'superbugs'
- CRISPR/Cas9 genome editing as a novel way to study the interaction between the host and the pathogens

Professor Matthew Cook (Translational Immunology/ Centre for Personalised Immunology; based at The Canberra Hospital)

- Monogenic human immune deficiency disease
- Gene regulation in human neutrophils from patients with systemic vasculitis
- NF-kB signalling in human inflammatory disease

Dr Julia Ellyard - Genetics of Autoimmunity

- Identifying genetic variants that induce autoimmune disease
- Understanding the cellular and molecular pathways that cause autoimmune disease

Associate Professor Elizabeth Gardiner

- Metalloproteinase activity in metastatic and non-metastatic tumours
- Platelet-tumour interactions in flowing blood

Dr Keisuke Horikawa - Hannan Group, Cancer Therapeutics

- Understanding lymphoma associated mutations
- Understanding lymphocyte singling pathways

Associate Professor Brett Lidbury Group - Pattern Recognition & Pathology

- Hepatitis B/C virus (HBV, HCV) infection/disease. *In silico* virology and pathology extending into liver disease and the role of routine liver function tests in diagnosis
- Chronic Fatigue Syndrome/ME – high dimension analysis of patient data for improved diagnosis. This medical science project will entail data mining and statistics.

Associate Professor Brendan McMorran - Genetics and Infectious Diseases

- Understanding why malarial parasites require host haem biosynthetic enzymes.
- Developing host-directed treatments for malarial infection.
- Understanding how platelets protect the host during malarial infection

Dr Riccardo Natoli - Gene expression in the human macula

- Role of miRNA in retinal degenerations
- The use of miRNA as potential therapeutic targets in diseases causing retinal degenerations
- Understanding the role of glia in the progression of Age-Related Macular Degeneration
- Novel therapeutics for reducing inflammation and oxidative stress in the progression of Age-Related Macular Degeneration

Associate Professor Charani Ranasinghe – Molecular Mucosal Vaccine Immunology

- Assess novel vaccine adjuvants to enhance mucosal immunity
- Identification of antigen presenting cell subsets following mucosal vaccination
- Study IL-4/IL-13 cytokines and their receptor regulation specifically at the mucosae
- Study different innate lymphoid cell subsets at the mucosae

Professor David Tremethick - Chromatin and transcriptional regulation during development

- Uncovering new epigenetic-based regulatory mechanisms of gene expression: novel links between histone variants, RNA function and disease.
- The special role of histone variants in regulating the inheritance and three-dimensional organisation of the epigenome.
- A new paradigm for the control of cellular function: the dynamic reshaping of the epigenome by histone variants.

Professor David Tscharke – Viruses and immunity

- Relating antigen presentation to immune responses
- Understanding how viruses evade immune responses
- The role of viral gene expression in herpes simplex virus latency
- Understanding genetic susceptibility to virus infection

For more information about how to apply please go to: http://jcsmr.anu.edu.au/study/honours

For more information about potential supervisors at JCSMR please go to: http://jcsmr.anu.edu.au/research/groups

JCSMR Honours Year Scholarships

Paul Bunyan Memorial Scholarship in Medical Sciences

This is a scholarship awarded in memory of Paul Bunyan. The Scholarship provides a stipend of $6,000 for one year for a Medical Science Fourth Year (Honours) student in a field normally related to cancer research.

Alexander McTaggart Memorial Scholarship

This is a scholarship awarded in memory of Alexander McTaggart. The Scholarship provides a stipend of $6000 for one year for a fourth year (Honours) student in medical science related to cancer research and
allied fields.

The Joyce Fildes Scholarship in Medical Science

This scholarship has been generously endowed by Dr Joyce Fildes, an original member of the John Curtin School of Medical Research. The Scholarship provides a stipend of $ 6000 for one year for a fourth year (Honours) student in medical science.

Eccles Institute of Neuroscience Scholarships

A number of scholarships may be available to high-calibre students wishing to undertake Honours. The scholarship provides a stipend of AUD$ 6000 for one year for projects in neuroscience.